WHAT IS CLAIMED IS:

1. A method of medical ultrasound imaging using a medical ultrasound imaging system that includes an array transducer, said method comprising:

transmitting ultrasound waves into a volume at a first rate;

receiving ultrasound echoes for each of the ultrasound waves wherein each set of received echoes that corresponds to a single transmitted wave defines a steering frame;

detecting motion of the array transducer; and

combining a plurality of steering frames into a compound image based on the motion of the array transducer.

2. A method in accordance with Claim 1 wherein detecting motion of the array transducer comprises detecting a rate of change of motion of the array transducer.

3. A method in accordance with Claim 1 wherein detecting motion of the array transducer comprises detecting misregistration of successive steering frames due to motion of the array transducer.

4. A method in accordance with Claim 3 wherein detecting misregistration of successive steering frames comprises detecting misregistration of successive steering frames due to a velocity of the array transducer.

5. A method in accordance with Claim 3 wherein detecting misregistration of successive steering frames comprises detecting misregistration of successive steering frames using at least one of correlation block search, Doppler tissue velocity, an accelerometer, a motion sensor, feature tracking, cross correlation, and a sum of absolute differences.

6. A method in accordance with Claim 3 wherein detecting misregistration of successive steering frames comprises detecting misregistration of successive steering frames using a compound image.

7. A method in accordance with Claim 3 wherein combining a plurality of steering frames into a compound image comprises combining a first number of steering frames when a first level of misregistration is detected, and combining a second number of steering frames when a second level of misregistration is detected, the first number of steering frames being greater than the second number of steering frames, and wherein the second level of misregistration is associated with a greater level of array transducer motion than the first level of misregistration.

8. A method in accordance with Claim 1 wherein combining a plurality of steering frames into a compound image comprises combining a plurality of steering frames into a compound image such that the number of steering frames combined is based on the detected array transducer motion.

9. A method in accordance with Claim 1 wherein combining a plurality of steering frames into a compound image comprises combining a plurality of steering frames into a compound image using a weighted average of the steering frames such that a weighting on the broadside steered frame is proportional to the detected motion.

10. A method in accordance with Claim 1 further comprising combining a plurality of steering frames into a compound image such that the number of steering frames combined is based on the detected array transducer motion using a compound image.

11. A method in accordance with Claim 1 further comprising transmitting the plurality of ultrasound waves into the volume at a second rate based on the detected array transducer motion.

12. A medical ultrasound system, comprising:

an array transducer transmitting and receiving ultrasound signals for transmitting ultrasound waves into a volume at different steering angles;

a receiver for receiving signals from said transducer indicative of ultrasound echoes for each of said ultrasound waves, each set of received echoes that corresponds to a single transmitted wave defining a steering frame;

a signal processor detecting motion of the array transducer and combining said steering frames into a compound image based on the detected array transducer motion; and

a display for outputting information based on said compound images.

13. An ultrasound system in accordance with Claim 12 wherein said signal processor is configured to detect misregistration of successive steering frames due to motion of the array transducer.

14. An ultrasound system in accordance with Claim 13 wherein said signal processor is configured to detect misregistration of successive steering frames due to a velocity of the array transducer.

15. An ultrasound system in accordance with Claim 13 wherein said signal processor is configured to detect misregistration of successive steering frames using at least one of correlation block search, Doppler tissue velocity, an accelerometer, a motion sensor, feature tracking, cross correlation, and a sum of absolute differences.

16. An ultrasound system in accordance with Claim 13 wherein said signal processor is configured to detect misregistration of successive steering frames using a compound image.

17. An ultrasound system in accordance with Claim 13 wherein said signal processor is configured to combine a first number of steering frames when a first level of misregistration is detected, and combine a second number of steering frames when a second level of misregistration is detected, the first number of steering

frames being greater than the second number of steering frames, and wherein the second level of misregistration is associated with a greater level of array transducer motion than the first level of misregistration.

18. An ultrasound system in accordance with Claim 12 wherein said signal processor is configured to combine a plurality of steering frames into a compound image such that the number of steering frames combined is based on the detected array transducer motion.

19. An ultrasound system in accordance with Claim 12 wherein said signal processor is configured to combine a plurality of steering frames into a compound image using a weighted average of the steering frames such that a weighting on the broadside steered frame is proportional to the detected motion.

20. An ultrasound system in accordance with Claim 12 wherein said signal processor is configured to combine a plurality of steering frames into a compound image such that the number of steering frames combined is based on the detected array transducer motion using a compound image.

21. An ultrasound system in accordance with Claim 12 wherein said signal processor is configured to transmit the plurality of ultrasound waves into the volume at a second rate based on the detected array transducer motion.

22. A computer program embodied on a computer readable medium for controlling medical ultrasound imaging comprising a code segment that receives user selection input data and then:

transmits ultrasound waves into a volume at different steering angles;

receives ultrasound echoes for each of the ultrasound waves, each set of received echoes that corresponds to a single transmitted wave defining a steering frame;

detects motion of the array transducer; and

combines a plurality of steering frames into a compound image based on the detected array transducer motion.

23. A computer program in accordance with Claim 22 further comprising a code segment that detects misregistration of successive steering frames due to motion of the array transducer.

24. A computer program in accordance with Claim 23 further comprising a code segment that detects misregistration of successive steering frames due to a velocity of the array transducer.

25. A computer program in accordance with Claim 23 further comprising a code segment that detects misregistration of successive steering frames using at least one of correlation block search, Doppler tissue velocity, an accelerometer, a motion sensor, feature tracking, cross correlation, and a sum of absolute differences.

26. A computer program in accordance with Claim 23 further comprising a code segment that detects misregistration of successive steering frames using a compound image.

27. A computer program in accordance with Claim 23 further comprising a code segment that combines a first number of steering frames when a first level of misregistration is detected, and combines a second number of steering frames when a second level of misregistration is detected, the first number of steering frames being greater than the second number of steering frames, and wherein the second level of misregistration is associated with a greater level of array transducer motion than the first level of misregistration.

28. A computer program in accordance with Claim 22 further comprising a code segment that combines a plurality of steering frames into a compound image such that the number of steering frames combined is based on the detected array transducer motion.

29. A computer program in accordance with Claim 22 further comprising a code segment that combines a plurality of steering frames into a compound image using a weighted average of the steering frames such that a weighting on the broadside steered frame is proportional to the detected motion.

30. A computer program in accordance with Claim 22 further comprising a code segment that combines a plurality of steering frames into a compound image such that the number of steering frames combined is based on the detected array transducer motion using a compound image.

31. A computer program in accordance with Claim 22 further comprising a code segment that transmits the plurality of ultrasound waves into the volume at a second rate based on the detected array transducer motion.